

WHAT IS CLAIMED IS:

1. An oxygen consuming zero-gap electrolytic cell configured to minimize the
5 formation of peroxide comprising an ion-exchange membrane partitioning the cell
into an anode chamber including an anode and a cathode chamber including an
oxygen gas diffusion cathode, the oxygen gas diffusion cathode comprising a
single-piece of electrically conducting graphitized carbon cloth having a first side
and a second side, wherein catalyst and polytetrafluoroethylene are attached to
10 said first side but not to said second side, and wherein said cathode is oriented
with said second side adjacent to said ion-exchange membrane.
2. The cell of claim 1, wherein said catalyst comprises platinum supported on
carbon.
3. The cell of claim 2, wherein said catalyst comprises about 80% platinum
15 and about 20% carbon.
4. The cell of claim 3, further comprising a catalyst loading of about 5 mg/cm².
5. The cell of claim 1, wherein said cation-selective ion permeable membrane
comprises a sulfonate-containing polymer layer facing said anode and a
carboxylate-containing polymer layer facing said gas diffusion cathode.